

Key I am proud of you!!

UNIT 6 Study Guide: Solving Linear Systems

Test Thursday
No Retakes.

1. Is (3, -6) a solution to the system of linear equations

x, y

(must be true for both)

$$\begin{cases} 4x - y = 18 \\ x - 2y = -15 \end{cases} \quad \begin{aligned} 4(3) - (-6) &= 18 \\ 12 + 6 &= 18 \quad \text{yes to 1st} \\ 18 &= 18 \\ 3 - 2(-6) &= -15 \\ 3 + 12 &= -15 \\ 15 &\neq -15 \quad \text{No to 2nd} \end{aligned}$$

Graph to solve. On the test you have to graph

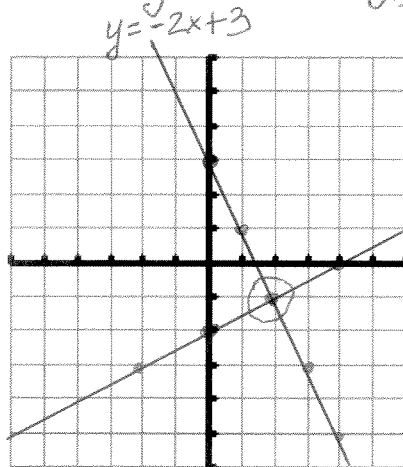
2. $y = \frac{1}{2}x - 2$

$$\begin{array}{r} 2x + y = 3 \\ -2x \quad -2x \\ \hline y = -2x + 3 \end{array}$$

$$y = -2x + 3$$

(2, -1)
Solution

graph each equation!



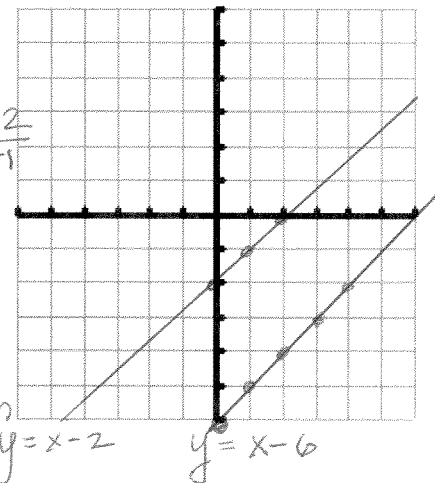
- 3.

$$y = x - 6$$

$$\begin{array}{r} x - y = 2 \\ -x \quad -x \\ \hline -y = -x + 2 \\ -1 \quad -1 \quad -1 \\ \hline y = x - 2 \end{array}$$

Parallel lines

No Solution



Matching. Record the letter of the correct answer in the blank provided.

Description of Graphs

3. Intersecting Lines

4. Parallel Lines

5. Same Line

B. One solution

C. No solution

A. Infinite solutions

Solution

- A. Infinitely Many Solutions

- B. One Solution

- C. No Solution

For 6-9 solve each linear system. One problem must be done with substitution, another using elimination, and for the other two problems use any method. Check your work.

6. Substitution $y = x + 3$

$$\begin{array}{r} 2x + y = 3 \\ 2x + (x + 3) = 3 \\ 2x + x + 3 = 3 \\ 3x + 3 = 3 \\ -3 \quad -3 \\ \hline 3x = 0 \\ x = 0 \end{array}$$

$$\begin{array}{l} y = x + 3 \\ y = 0 + 3 \\ y = 3 \end{array}$$

- 7.

$$\begin{array}{r} 5x - 3y = 4 \\ -4x + y = -6 \end{array}$$

$$\begin{array}{l} x = 2 \\ y = 2 \end{array} \quad (2, 2)$$

8. Elimination $11x - y = 14$

$$\begin{array}{r} 11x - y = 14 \\ + \quad 2x + y = -1 \\ \hline 13x = 13 \\ x = 1 \end{array}$$

$$\begin{array}{r} 2x + y = -1 \\ 2(1) + y = -1 \\ 2 + y = -1 \\ y = -3 \end{array}$$

- 9.

$$\begin{array}{r} 3x + 5y = 11 \\ 4x - 3y = 5 \end{array}$$

$$\begin{array}{l} x = 2 \\ y = 1 \end{array} \quad (2, 1)$$

Write a system of equations to represent this situation. Solve using the method of your choice.

10. A nature center charges \$35.25 for a yearly membership and \$6.25 for a single admission. Last week it sold a combined total of 50 yearly memberships and single admissions for \$660.50. How many yearly memberships and how many single admissions were sold?

Let x = yearly
 y = single

$$\begin{array}{r} x + y = 50 \\ \$35.25x + \$6.25y = \$660.50 \end{array}$$

use app
 $x = 12$ yearly
 $y = 38$ single

11. You and a friend go to Taco Bell for lunch. Your order three soft tacos and three burritos and your bill totals \$11.25. Your friend's bill is \$10.00 for four soft tacos and two burritos. How much do soft tacos cost? How much do burritos cost?

x = taco's
 y = burritos

$$\begin{array}{r} 3x + 3y = 11.25 \\ 4x + 2y = 10.00 \end{array}$$

$x = 1.25$ taco
 $y = 2.50$ burrito